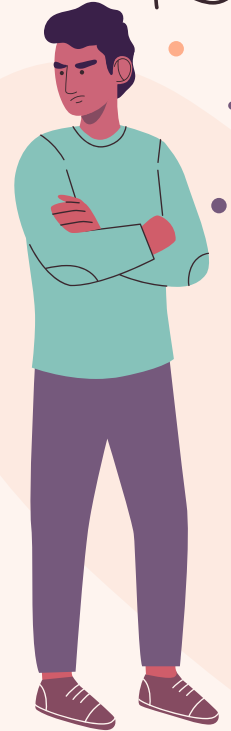


**21CSE356T-NATURAL
LANGUAGE PROCESSING**

REVIEW-1



SENTIMENT ANALYSIS BOT

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INTRODUCTION



Sentiment analysis is the computational study of people's opinions, attitudes, and emotions expressed in text. By leveraging Natural Language Processing techniques, we can automatically extract and quantify subjective information from various text sources like social media, reviews, and surveys.



This technology allows organizations to:


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- Monitor brand reputation in real-time
 - Understand customer feedback at scale
 - Track consumer reactions to products or campaigns
 - Identify emerging issues before they escalate
- 



PROBLEM STATEMENT



Businesses struggle to efficiently analyze and extract meaningful insights from vast amounts of unstructured textual data. Customer feedback, social media comments, and product reviews contain valuable sentiment information, but manual analysis is time-consuming, inconsistent, and cannot scale. Without automated sentiment analysis capabilities, organizations miss critical opportunities to understand customer opinions, detect emerging issues, and make data-driven decisions.



OBJECTIVE

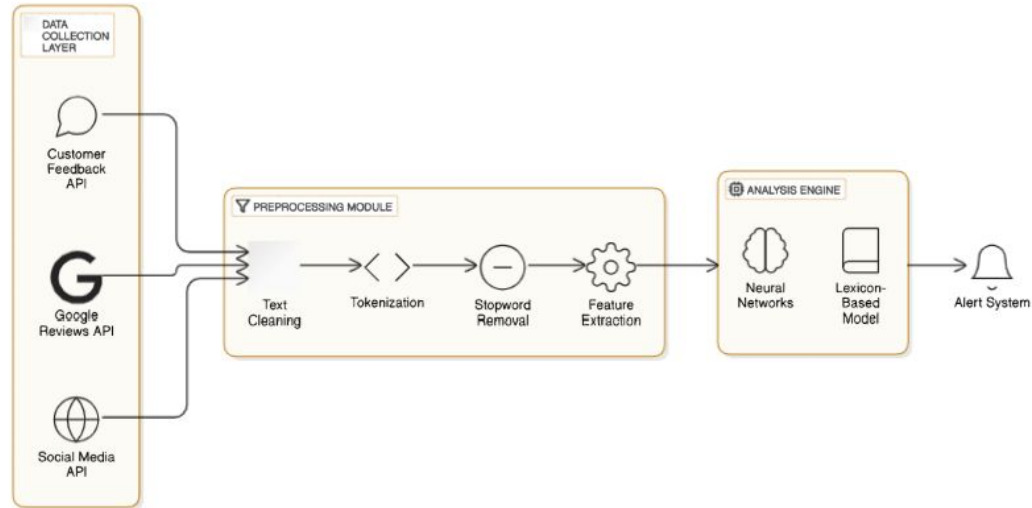
- Develop an automated sentiment analysis system using NLP to classify text as positive, negative, or neutral
- Create a scalable architecture capable of processing high volumes of text data in real-time
- Achieve sentiment classification accuracy of 85% or higher compared to human analysis
- Provide actionable insights through comprehensive visualization and reporting tools
- Enable sentiment trend analysis across time periods and specific product/service categories



SYSTEM ARCHITECTURE

- **Data Collection Layer:** API connectors for social media platforms, review sites, and internal customer feedback systems
- **Preprocessing Module:** Text cleaning, tokenization, stopword removal, and feature extraction
- **Analysis Engine:** Combined lexicon-based and machine learning models for sentiment classification
- **Visualization Dashboard:** Interactive web interface with real-time sentiment metrics
- **Alert System:** Automated notification for significant sentiment shifts or threshold triggers

SYSTEM ARCHITECTURE





FEATURE AND FUNCTIONALITIES



- **Multi-source Analysis:** Process text from diverse platforms including Twitter, reddit.
- **Aspect-based Sentiment:** Identify sentiment toward specific product features or service aspects
- **Emotion Detection:** Classify text beyond positive/negative into detailed emotional categories
- **Multilingual Support:** Process content in English, Spanish, French, German, and Mandarin

FEATURE AND FUNCTIONALITIES

- **Temporal Analysis:** Track sentiment changes over time with customizable time windows
- **Competitive Benchmarking:** Compare sentiment metrics against industry competitors
- **Automated Reporting:** Scheduled insights delivery to stakeholders via email





THANKS!

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